# Governor's Office for Technology
# Emergency and Tornado Information

# TORNADO SHELTER SURVEY
# FOR
# DEPARTMENT OF INFORMATION SYSTEMS OFFICES
# CAPITAL COMPLEX EAST
# FRANKFORT, KENTUCKY

AUGUST 1999

KENTUCKY DIVISION OF EMERGENCY MANAGEMENT

EMERGENCY OPERATIONS CENTER

BOONE CENTER

FRANKFORT, KENTUCKY

## INTRODUCTION

The majority of tornadoes in Kentucky occur in the spring during late afternoon or early evening hours, approaching from the Southwest. Due to their complex causes, tornadoes are difficult to predict and can occur at any hour on any day of the year. Approach might be from any direction, at speeds as high as 60 miles per hour, leaving little time to carry out safety measures. To prepare for this threat, it is essential to formulate emergency plans in advance and to rehearse those plans from time to time. Whenever a tornado watch is announced on radio or television, make preparations for immediate action. A **tornado watch** means that weather conditions are right for a tornado to form. A **tornado warning** will be announced when a tornado touches down and/or is sighted in the area. If a tornado warning is issued for your area and the sky becomes threatening, move immediately to a pre-designated place of safety.

## GENERAL COMMENTS

On Wednesday, March 17, 1999 an on-site inspection was made of the Department of Information Systems (DIS), Capital Complex East Offices, 1025 Capital Drive, Frankfort, Kentucky. The inspection was accomplished with the assistance of Mr. David Brown, DIS. It was conducted to locate space offering the best available protection from wind storms and tornadoes. The resulting spaces are designated on a simplified plan of the building (See enclosed building plan).

A basement or below ground area offers the safest space in a building during a tornado, provided there are no structural deficiencies or safety hazards such as unprotected machinery, exposed equipment, storage tanks and pipes that could rupture and release hazardous materials. The Capital Complex East Office Building is a multi-story structure with no basement, therefore, all shelter areas are designated on the first floor.

The Department of Information Systems occupies offices on approximately 2/3 of the first floor, and other agencies have offices on the 1st and upper floors. From a visual examination of the facility during the inspection, it was determined that the building is a steel frame structure with concrete slab floors on metal decking and open-web steel joists.

The evaluation of the tornado shelter areas designated in this report is based on engineering judgment. The shelter areas are believed to be the **best available** in the facility, though the selection does not imply a guarantee of safety. A differentiation of Primary and Secondary space may be made on the plan of the building as a relative description of the available shelter. **Primary** being the area that should be considered first when designating shelter space, and **Secondary** shelter space as not being ideally suited for protecting the occupants due to one or more structural or safety hazard(s).

To aid in the effective use of the shelter areas designated, plans should be made for a warning system in the building. The DIS Capital Complex East Offices utilize the paging feature on the office telephones to notify employees of approaching severe weather. A NOAA Weather Radio is used to receive the initial severe weather warning. The building's current emergency plan should also be updated to include instructions for an orderly evacuation to the several shelter areas. In designating possible shelter areas in each building first consideration should be given to interior spaces with short spans (such as corridors and small offices with no exterior walls) on the lowest floor of the building. Whenever possible, rooms with exterior walls should be avoided.

## PRIMARY SHELTER AREAS

The enclosed building plan identifies the recommended tornado shelter areas for the DIS Capital Complex East Offices. The following calculation is an estimation of the number of

primary shelter spaces available in the facility. The resulting number assists in determining if secondary shelter areas are needed to accommodate the actual building population.

| | |
|---|---|
| Primary Shelter Area | 3,516 Square feet |
| x Usability Factor * | x .85[1] |
| Usable Primary Shelter Area | 2,988 Square feet of Usable Primary Shelter Area |

The 2,988 square feet of usable shelter area translates into approximately **498 tornado shelter spaces at 6 square feet per space**. The primary shelter spaces indicated are sufficient to accommodate the current maximum office population of approximately 75 persons. Employees using the large conference room or other offices should take the additional protective action of getting under a desk, table or other heavy furniture, if available. These pieces of furniture can offer protection from non-structural building elements, such as light fixtures, HVAC diffusers and ceiling tiles which could collapse into the room.

The DIS Capital Complex East Offices occupy the lowest and most protected floors in the building, but it is not the only organization or agency in the structure. The additional shelter areas (approximately 423) should be designated for the other offices located in the building. Arrangements should be made with all offices in the building to allow employees on the upper floors of the building access to the shelter areas during severe storms or tornado warnings. Because of the coordination and planning involved, an exercise should be conducted before the spring severe weather season to determine if the areas selected will effectively shelter the building population.

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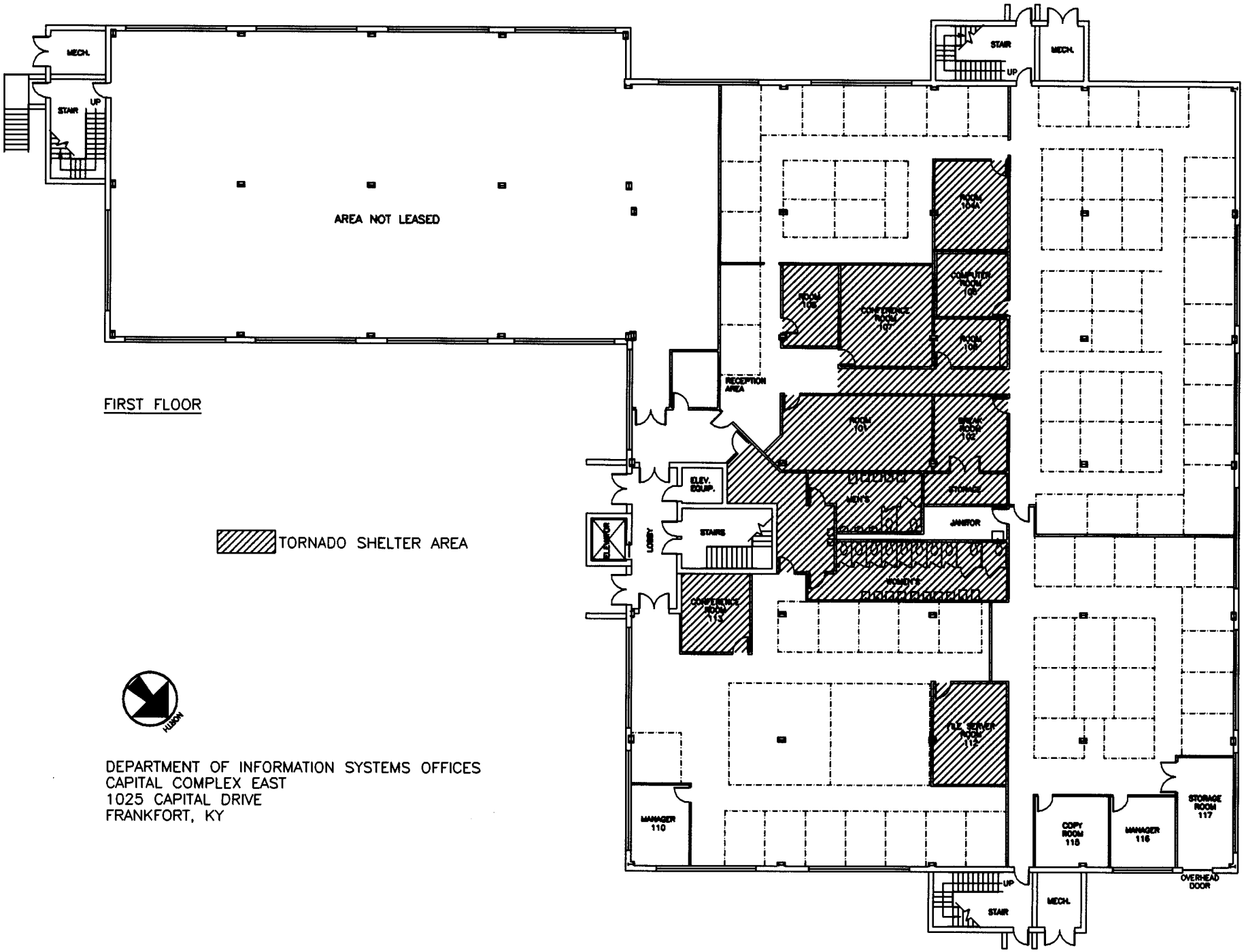
[1] Floor Area Usability Factor for Government Offices.

## TORNADO SAFETY

Safety can sometimes be improved by upgrading the shelter areas in a building. For example, cleaning proposed shelter areas of unnecessary equipment and debris. Glass areas in or near the shelters should be of reinforced glass or structural plastic. Other general safety rules include:

1. When a severe storm is imminent, everyone should seek shelter inside. Persons working in buildings with no shelter should be advised to move to areas of safety in other structures.
2. Stay away from **windows, outside doors and exterior walls**. Avoid unprotected corridors facing the oncoming winds. Exterior openings at both ends of a corridor can allow the winds to penetrate into interior space and become a wind tunnel.
3. Stay away from rooms with long span roof members. The use of interior corridors and small interior rooms is recommended.
4. Seek protection from flying debris, particularly glass. Example: A sitting or kneeling position with hands protecting the back of the head and neck. Use a coat, jacket, book, etc. as a shield and face away from glass areas.
5. Keep calm. Do not run outside.

Additional information on protective measures and survey refinement are contained in FEMA publication TR-83B Tornado Protection, Selecting and Designing Safe Areas in Buildings.




FIRST FLOOR

TORNADO SHELTER AREA

DEPARTMENT OF INFORMATION SYSTEMS OFFICES
CAPITAL COMPLEX EAST
1025 CAPITAL DRIVE
FRANKFORT, KY

**GOT CENTRAL COMPUTER FACILITY - 101 COLD HARBOR DRIVE**
**EMERGENCY PROCEDURES FOR EMPLOYEES**

**Emergency Alert Number**
**4-8700**

## FIRE

1. Alert others by shouting to those in your immediate area.
2. If more than one person is in the area:
   A. One must call **EMERGENCY ALERT NUMBER 4-8700** to report the situation, and remain on the phone if requested.
   B. Another should locate a fire extinguisher and attempt to put out the fire.
   C. *If you are alone*, you must decide which to do first: A or B, depending upon the situation or the extent of the fire.

   **IMPORTANT**: If you extinguish the fire on your own, or with others, you must call **EMERGENCY ALERT NUMBER 4-8700** to report the incident to the Frankfort Fire Department.
   D. Pull the general alarm if the party at the **EMERGENCY ALERT NUMBER 4-8700** tells you to do so. If instructed to pull the alarm and evacuate the building, please close all fire doors and leave the building by your designated evacuation route (see map), or as directed.
   E. Disabled persons will be assisted by designated volunteers.

## BUILDING EVACUATION

If you are instructed to evacuate:

- Move to the exit designated for your use.
- Remain calm; help others as needed.
- Move out and away from the building to your assembly area and keep a minimum of 300 feet away from the building. (See map for safe assembly area.)
- Do not return to the building until you are given the ALL CLEAR announcement. DO NOT leave assembly areas unless you are authorized to do so.
- Be alert for emergency vehicles.

**MEDICAL**

If illness or injury occurs in your area:

1. Render whatever aid of which you are capable, moving the patient as little as possible.
2. Call the **EMERGENCY ALERT NUMBER 4-8700** or **911** and state the problem, whether an ambulance is needed, and be as specific as possible about the problem and the location of the person needing assistance. Stay on the phone if requested. Be prepared to meet emergency personnel at your floor.
3. Protect the injured or ill person from on-lookers.
4. If you have called **911**, please contact **EMERGENCY ALERT NUMBER 4-8700** for assistance in directing emergency personnel to your area.

**SEVERE WEATHER**

- Call **EMERGENCY ALERT NUMBER 4-8700** if you believe you have information that is not known to state officials. Report facts as you know them. Stay on the line if requested.

- The Kentucky Division of Emergency Management monitors weather conditions and any information that would pose a threat to employees is communicated through the government warning system to state government offices with these capabilities.

- If you receive a tornado warning, please seek shelter in the areas of the ground floor designated as TORNADO SHELTER AREA.

**EARTHQUAKE**

1. Keep calm. Don't run or panic. Remain where you are.
2. If indoors, stay indoors. Seek shelter under sturdy furniture, sit or stand against an inside wall or inside doorway. Stay near the center of the building. Stay away from windows and outside doors.
3. If outside, stay in the open away from buildings and utility wires.
4. Do not attempt to leave building unless instructed.
5. Do not use candles, matches, or other open flames.
6. If in a moving car, stop, but stay inside.

**BOMB OR OTHER SECURITY THREATS**

1. If you receive a threat by telephone, try to obtain the maximum information from the caller, and keep the caller on the line as long as possible. Refer to the threat checklist accompanying this information, which provides for the type of questions and other information you should seek from the caller.
2. Immediately report the threat to the **EMERGENCY ALERT NUMBER 4-8700** and remain on the line for instructions.
3. Do not attempt to leave the building or make any decisions concerning a threat without specific instructions from personnel at the **EMERGENCY ALERT NUMBER 4-8700**.
4. You may be asked if you see or notice anything or any object that is unusual or out of place in your area. If you see anything of this nature, do not disturb the item and immediately call **EMERGENCY ALERT NUMBER 4-8700.**
5. A decision will be made upon the information provided. If an evacuation is ordered, follow instructions closely and leave the building using the designated evacuation route.

**Facilities Management**
**Check Sheet for Telephoned Bomb Threat**

**Exact wording of threat** _____

_____

_____

_____

**(Ask caller to repeat statement)** _____

_____

_____

_____

**Did caller say anything beyond issuing a threat? If so, what else was said?**

_____

_____

_____

**Was the caller** ❒ **male** ❒ **female** ❒ **youth**

**Describe any accent, voice or breath characteristics, speech impediments, intonation**

_____

_____

**Was the caller** ❒ **nervous** ❒ **calm** ❒ **angry**

**Describe any background noise** _____

_____

_____

**Time/date of call** _____ **Person taking call** _____

**Report immediately to** _____

# TORNADO SHELTER SURVEY
# FOR
# CENTRAL COMPUTER FACILITY
# DEPARTMENT OF INFORMATION SYSTEMS
# FRANKFORT, KENTUCKY

AUGUST 1999

KENTUCKY DIVISION OF EMERGENCY MANAGEMENT
EMERGENCY OPERATIONS CENTER
BOONE CENTER
FRANKFORT, KENTUCKY

## INTRODUCTION

The majority of tornadoes in Kentucky occur in the spring during late afternoon or early evening hours, approaching from the Southwest. Due to their complex causes, tornadoes are difficult to predict and can occur at any hour on any day of the year. Approach might be from any direction, at speeds as high as 60 miles per hour, leaving little time to carry out safety measures. To prepare for this threat, it is essential to formulate emergency plans in advance and to rehearse those plans from time to time. Whenever a tornado watch is announced on radio or television, make preparations for immediate action. A **tornado watch** means that weather conditions are right for a tornado to form. A **tornado warning** will be announced when a tornado touches down and/or is sighted in the area. If a tornado warning is issued for your area and the sky becomes threatening, move immediately to a pre-designated place of safety.

## GENERAL COMMENTS

On Wednesday, March 17, 1999 an on-site inspection was made of the Department of Information Systems (DIS), Central Computer Facility, 101 Cold Harbor Drive, Frankfort, Kentucky. The inspection was accomplished with the assistance of Mr. David Brown, DIS. It was conducted to locate space offering the best available protection from wind storms and tornadoes. The resulting spaces are designated on a simplified plan of the building (See enclosed building plan).

A basement or below ground area offers the safest space in a building during a tornado, provided there are no structural deficiencies or safety hazards such as unprotected machinery, exposed equipment, storage tanks and pipes that could rupture and release hazardous materials. The DIS Central Computer Facility is a multi-story structure with no basement, therefore, all shelter areas are designated on the first floor.

From a visual examination of the facilities during the inspection, it was determined that the building was a mixture of concrete frame and wall bearing structures. The overhead construction consists of the concrete slab of the second floor.

The evaluation of the tornado shelter areas designated in this report is based on engineering judgment. The shelter areas are believed to be the **best available** in the facility, though the selection does not imply a guarantee of safety. A differentiation of Primary and Secondary space is made on the plan of the building as a relative description of the available shelter. **Primary** being the area that should be considered first when designating shelter space, and **Secondary** shelter space as not being ideally suited for protecting the occupants due to one or more structural or safety hazard(s).

To aid in the effective use of the shelter areas designated, plans should be made for a warning system in the building. The DIS Central Computer Facility utilizes the building's public address system to notify employees of approaching severe weather. A NOAA Weather Radio is used to receive the initial severe weather warning. The building's current emergency plan should also be updated to include instructions for an orderly evacuation to the several shelter areas. In designating possible shelter areas in each building first consideration should be given to interior spaces with short spans (such as corridors and small offices with no exterior walls) on the lowest floor of the building. Whenever possible, rooms with exterior walls should be avoided.

## PRIMARY SHELTER AREAS

The enclosed building plan identifies the recommended tornado shelter areas for the DIS Central Computer Facility. The following calculation is an estimation of the number of

primary shelter spaces available in the facility. The resulting number assists in determining if secondary shelter areas are needed to accommodate the actual building population.

| | |
|---|---|
| Primary Shelter Area | 2,444 Square feet |
| x Usability Factor * | x .50[1] |
| Usable Primary Shelter Area | 1,222 Square feet of Usable Primary Shelter Area |

The 1,222 square feet of usable shelter area translates into approximately **203 tornado shelter spaces at 6 square feet per space**. The primary shelter spaces indicated are sufficient to accommodate the current maximum building population of approximately 200 persons.

## SECONDARY SHELTER AREAS

If additional shelter spaces are required, employees and building occupants could also take shelter in the secondary shelter areas. The following is a listing of the secondary shelter areas and the reason for the designation.

- **Room 119 (Communications Room)** - This area is crowded with equipment and punch-down boards for the building's telephone system. It was not selected as primary because of the damage to the equipment, and danger to the occupants that was possible if occupied during a tornado.
- **Corridor outside Room 117** - This area is designated secondary because of the proximity of the exterior wall that faces almost due Southwest.
- **Corridor outside Conference Room and Room 129** - This is designated secondary because it opens onto the lobby which has large glass areas that face in a southeastern direction.

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[1] Normal floor usability factors are from 75% to 85%. Because the Supply Room may be full of inventory during a tornado warning, the usability factor was reduced to 50 %.

- **Vending Rooms next to Room 129** - These areas are interior, but the light weight partition walls are located adjacent to Room 129 which has large glass areas facing south.

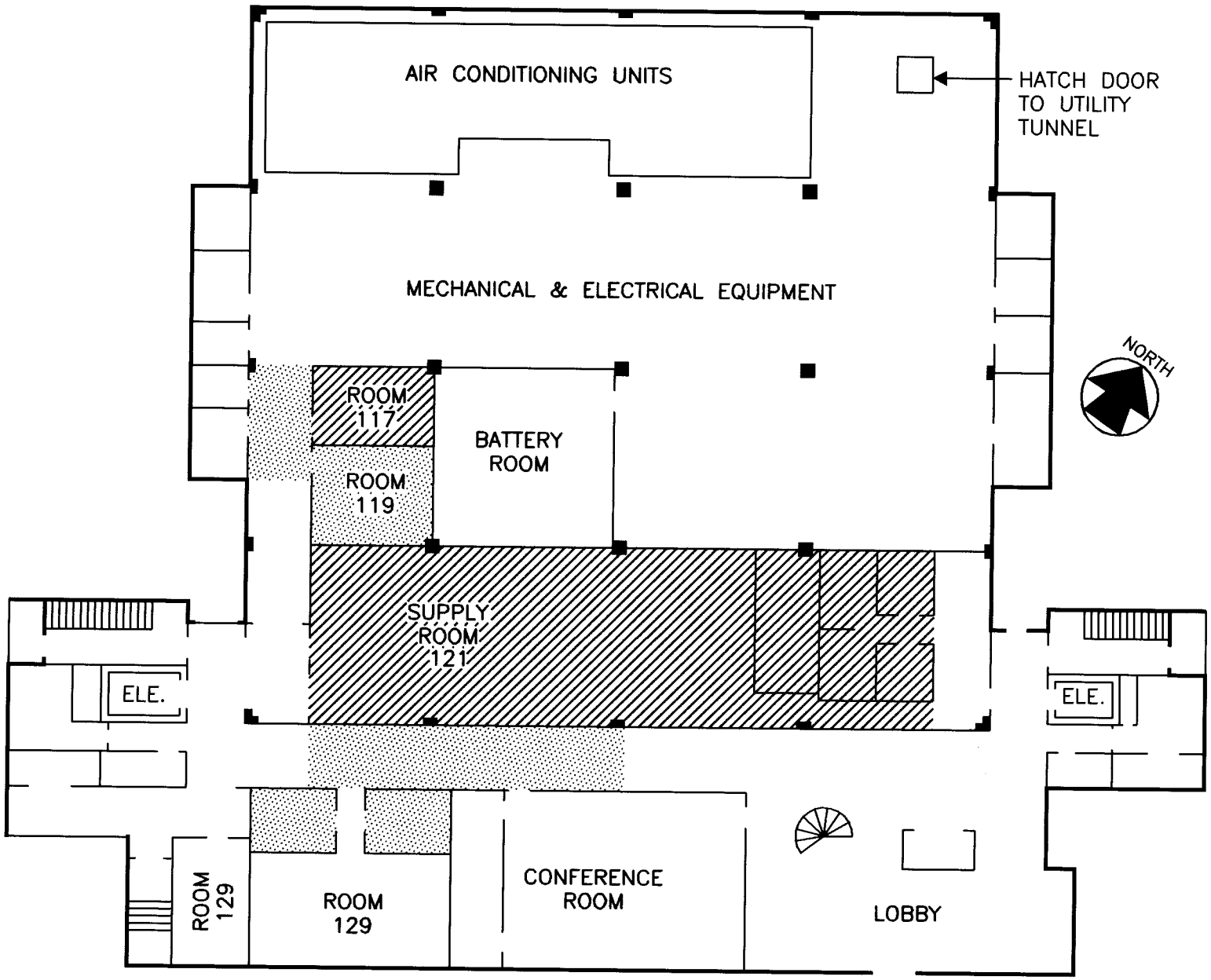
An exercise should be conducted before the spring severe weather season to determine if the areas selected will effectively shelter the building population.

## TORNADO SAFETY

Safety can sometimes be improved by upgrading the shelter areas in a building. For example, cleaning proposed shelter areas of unnecessary equipment and debris. Glass areas in or near the shelters should be of reinforced glass or structural plastic. Other general safety rules include:

1. When a severe storm is imminent, everyone should seek shelter inside. Persons working in buildings with no shelter should be advised to move to areas of safety in other structures.
2. Stay away from **windows, outside doors and exterior walls**. Avoid unprotected corridors facing the oncoming winds. Exterior openings at both ends of a corridor can allow the winds to penetrate into interior space and become a wind tunnel.
3. Stay away from rooms with long span roof members. The use of interior corridors and small interior rooms is recommended.
4. Seek protection from flying debris, particularly glass. Example: A sitting or kneeling position with hands protecting the back of the head and neck. Use a coat, jacket, book, etc. as a shield and face away from glass areas.
5. Keep calm. Do not run outside.

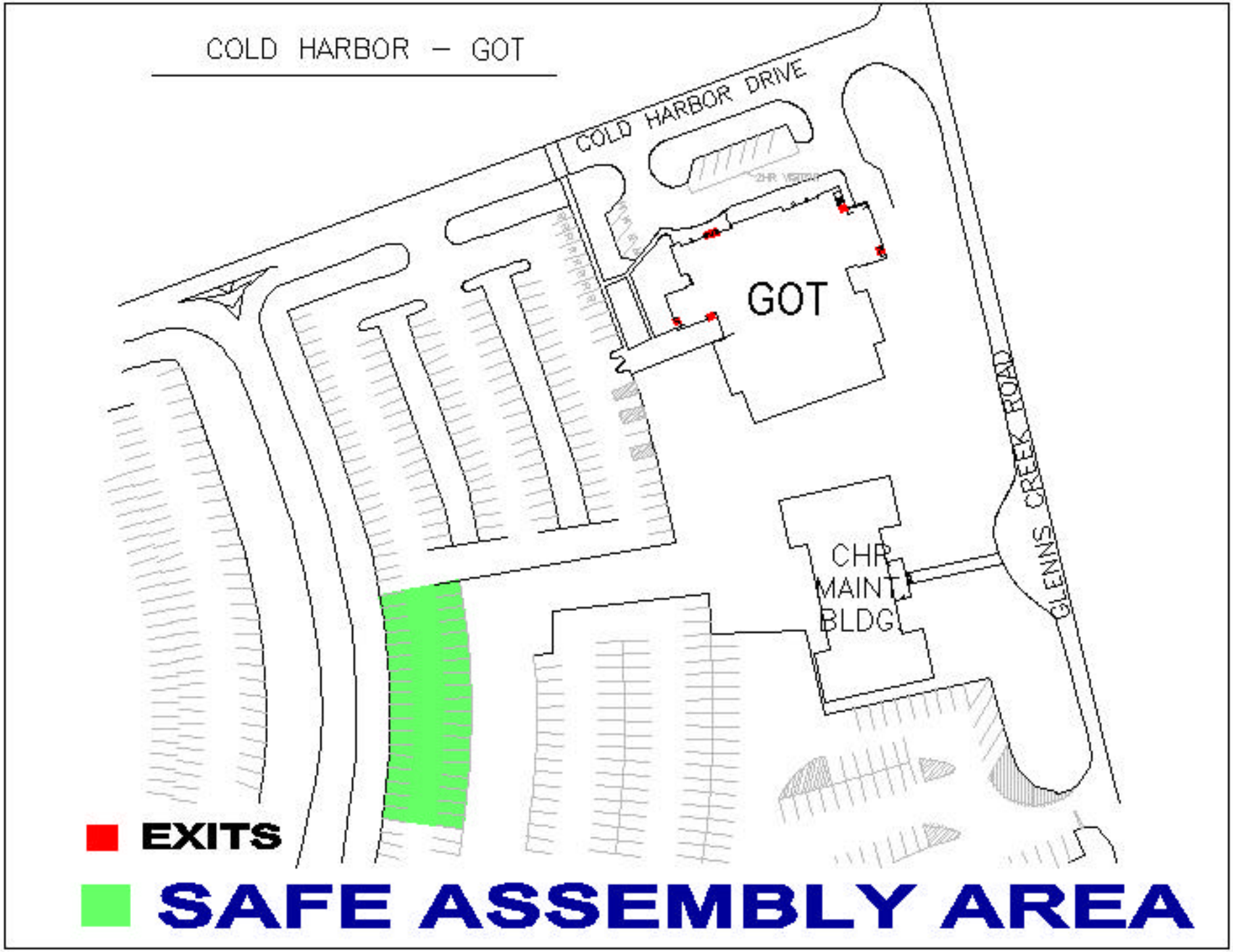
Additional information on protective measures and survey refinement are contained in FEMA publication TR-83B Tornado Protection, Selecting and Designing Safe Areas in Buildings.



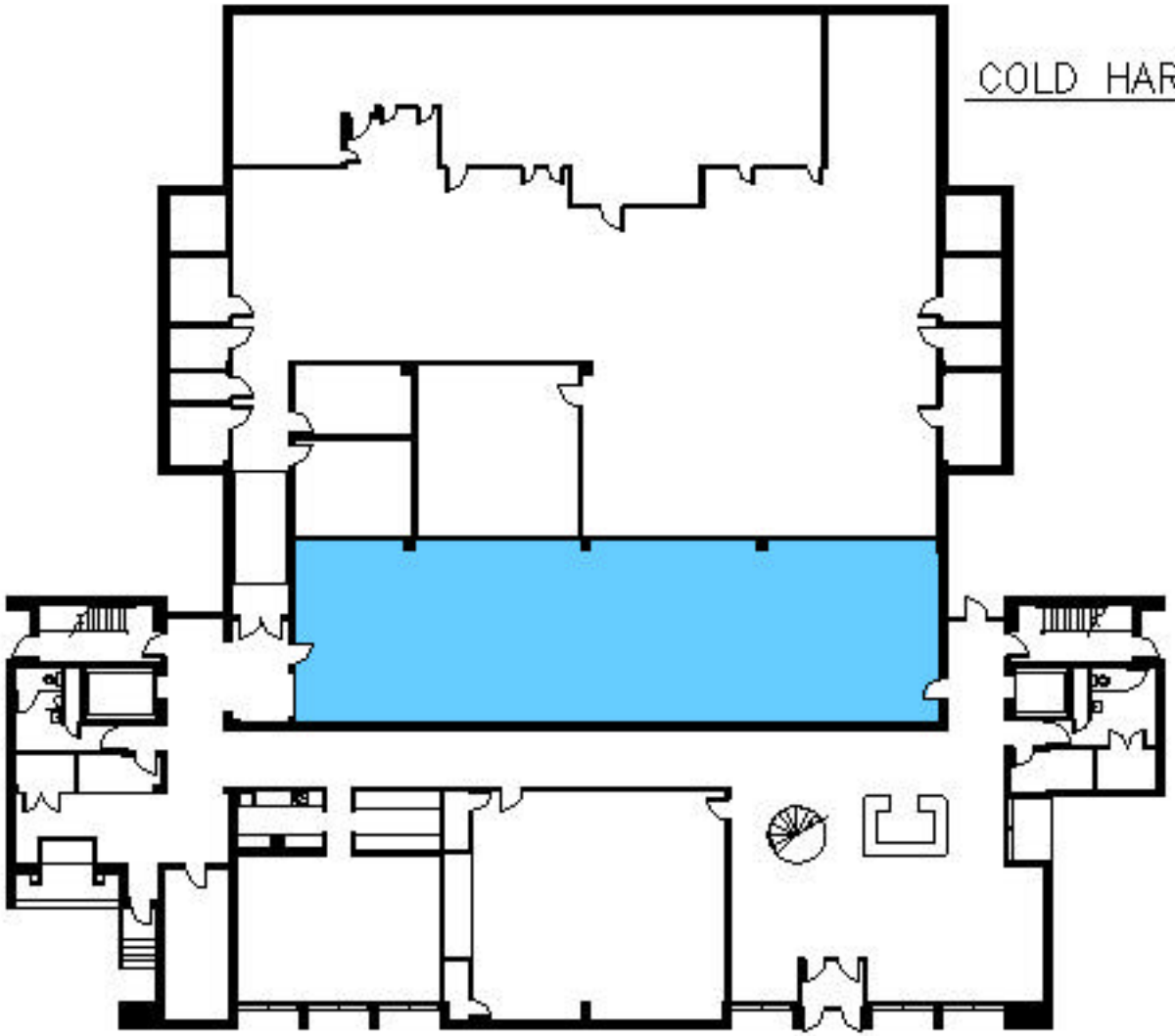

CENTRAL COMPUTER FACILITY
DEPARTMENT OF INFORMATION SYSTEMS
101 COLD HARBOR DRIVE, FRANKFORT, KY

PRIMARY TORNADO SHELTER

SECONDARY TORNADO SHELTER


COLD HARBOR – GOT
COLD HARBOR DRIVE
GOT
CHR MAINT BLDG
GLENNS CREEK ROAD
EXITS
SAFE ASSEMBLY AREA

COLD HARBOR – GOT



FIRST FLOOR PLAN

**TORNADO SHELTER AREA**

**FAIR OAKS 100**
**EMERGENCY PROCEDURES**
**SAFETY PERSONNEL**

**FIRE**

**IF THE MECHANICAL FIRE ALARM SOUNDS:**

- **Call 5th floor----4-4921 x 4498** Shirley Buffin
- **Call 4th floor---4-4860** Geoff Reed
- **Call 3rd floor----4-8006** Roy Collins
- **Call 2nd floor----4-3956** Bob Lusby
- **Call 1st floor----4-4140 x 0** Linda Hamel

**Evacuate the employees to the safe assembly area.**

- **Call -----Fire Department---------9-911**
- **Call------Fair Oaks Security------4-2164**
- **Call------Facility Security-------- 9-695-6380**
- **Let the alarm sound and meet the FFD and tell them the exact location of the problem and if anyone is still in the building.**
- **Stand by to get the all clear or other information from the Fireman in charge.**
- **With an all clear from the Fireman in charge ask employees to return to their workstations.**

**BOMB THREAT**

- **A bomb threat may be received by anyone in the building and reported to emergency alert number 4-1404-x 0**
- **Get the caller's exact account of the threat, the caller's name and telephone number for a call back verification.**
- **Ask the person reporting the threat to go to a predetermined location at the safe assembly area so they can easily be found. This is important because the Kentucky State Police will need to interview them.**
- **Evacuate the employees to the safe assembly area (see map) and get disabled individuals out as described above.**
- **Call-----Frankfort Fire Department----------9-911**
- **Call-----Kentucky Stare Police----------9-227-2221**
- **Call-----Facility Security----------9-695-6380**
- **Call-----Fair Oaks Security----------4-2164**

- **Stand by to give the KSP a complete account of what they want to know.**
- **Employees will be permitted to reenter the building when the officer in charge gives the all clear.**
- **Keep the form of questions regarding what to ask in case of a phoned in bomb threat near and visible at all times at your workstation. This is valuable information for the Kentucky State Police.**

**Severe Weather**

- **When you receive a severe weather warning you must call for employees to seek shelter.**
- **The Frankfort siren is used as a warning signal to alert citizens to weather conditions in Frankfort. When the siren is activated, employees should seek shelter immediately.**
- **In addition to the siren you may want to use a radio or TV station that provides weather alerts instantly to your computer. The radio stations that has been the most reliable are Weather bug. Com and WTVQ.com**
- **Any radio or TV announcement concerning your area should be accepted as fact and severe weather safety procedures should be implemented.**
- **If you are not sure when the severe weather has ended please call the KYEM duty officer at 9-607-1638 for information.**

**MEDICAL**

- **Upon receipt of a request for medical assistance:**
- **Ask if 9-911 has been called and get the exact location of the individuals in need. If the call has not been made, do so immediately.**
- **Tell 9-911 the best entrance to use to reach the individuals in need.**
- **Have someone meet the medical team at the entrance and direct them to the location where the problem is.**
- **If elevator transportation is needed, commandeer an elevator for the emergency team to use and wait for the team to return.**

**EARTHQUAKE**

- **If no major damage, keep employees inside and inform them to be prepared for an aftershock.**

- **Stay apprised of the situation by listening to your portable radio or TV if available.**

**If there is damage to the building:**

- **Evacuate employees to the safe assembly area.**
- **Inform employees to stand by for dismissal and information regarding traffic routes.**
- **Contact KYEM at 9-607-1617 for information concerning roads and other information.**
- **Other incidents should be reported to 9-911or Fair Oaks security at 4-2164.**

**WORKPLACE VIOLENCE**

**Any call for help due to workplace violence:**

- **Call----4-2164---- Fair Oaks Security**
- **Call----9-695-6380--Facility Security**

**Explain the situation and the location of the problem.**

## EMERGENCY NUMBERS

**FIRE DEPARTMENT----------9-911**

**MEDICAL----------9-911**

**BOMB THREAT----------9-911**

**STATE POLICE----------9-227-2221**

**SECURITY----------9-695-6380**

**KYEM DUTY OFFICER-------9-607-1638**

**SECURITY---(AT FAIR OAKS)----4-2164**

**CALLTHESE NUMBERS WHEN:**

**FIRE**
**9-911**
**9-695-6380**
**4-2164**

**MEDICAL**
**9-911**

**BOMBTHREAT**
**9-911**
**9-695-6380**
**9-227-2221**
**4-2164**

**WORKPLACE VIOLENCE**
**4-2164**
**9-695-6380**

**UNKNOWN WEATHER OR ROAD CONDITIONS.**
**9-607-1638**

**AFTER ALL EMERGENCY CALLS HAVE BEEN MADE PLEASE CALL:**
**COMMISSIONERS FACILITIES MANAGEMENT-42623**
**SAFETY ADMINISTRATOR----------4-3000 X 233**

**ANNOUNCEMENT**
**EXAMPLES**

**Your attention please.**
**Please may I have your attention?**
- **This is _____speaking.**

**A fire has been reported at _____.**
**Please evacuate the building to the safe assembly area.**
**All disabled personnel please go to the elevator for pick up.**
**We will keep you informed.**

**( Repeat the announcement from the bullet down.)**

**Your attention please,**
**Please may I have your attention?**
- **This is _____ speaking.**

**We are conducting a tornado drill**
**Please evacuate to the tornado shelter.**
**Disabled persons should report to the elevator for pick up.**
**This is a drill.**

**(Repeat again from bullet down.)**

**Your attention please.**
**Please may I have your attention?**
**If the fire alarm sounds do not evacuate.**
**This is only a test**
- **Do not evacuate .This is only a test.**

**(Repeat entire announcement.)**

**These are some of the announcements the individual at the front desk will be making. Use these examples for making announcements. Always start the part from the top to the bullet. Then the type emergency. Be sure to speak slowly and very clearly.**

## QUESTIONS TO ASK

1. **When is the threat going to occur?** _____
2. **Where will it happen?** _____
3. **What does it look like?** _____
4. **What kind of bomb is it?** _____
5. **What will cause it to explode?** _____
6. **Did you place the bomb?** _____
7. **Why?** _____
8. **Where are you calling from?** _____
9. **What is your address?** _____
10. **What is your name?** _____

## CALLERS VOICE (circle)

| | | | | |
|---|---|---|---|---|
| **Calm** | **disguised** | **nasal** | **angry** | **broken** |
| **Stutter** | **slow** | **sincere** | **lisp** | **rapid** |
| **Giggling** | **deep** | **crying** | **squeaky** | **excited** |
| **Stressed** | **accent** | **loud** | **slurred** | **normal** |

**If voice is familiar ,whom did it sound like?** _____

**Was there any background noises?** _____

_____**REMARKS** _____

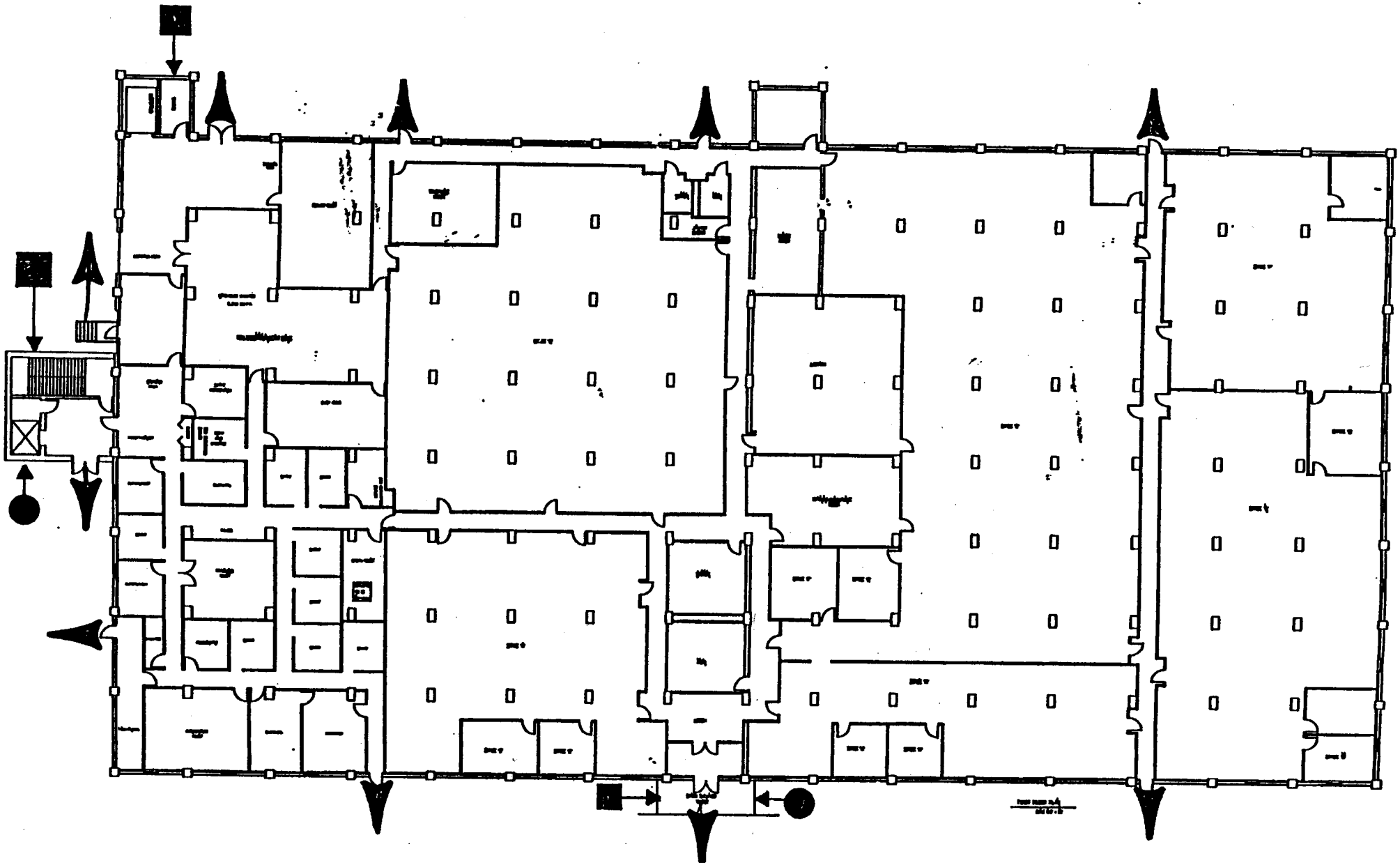
_____

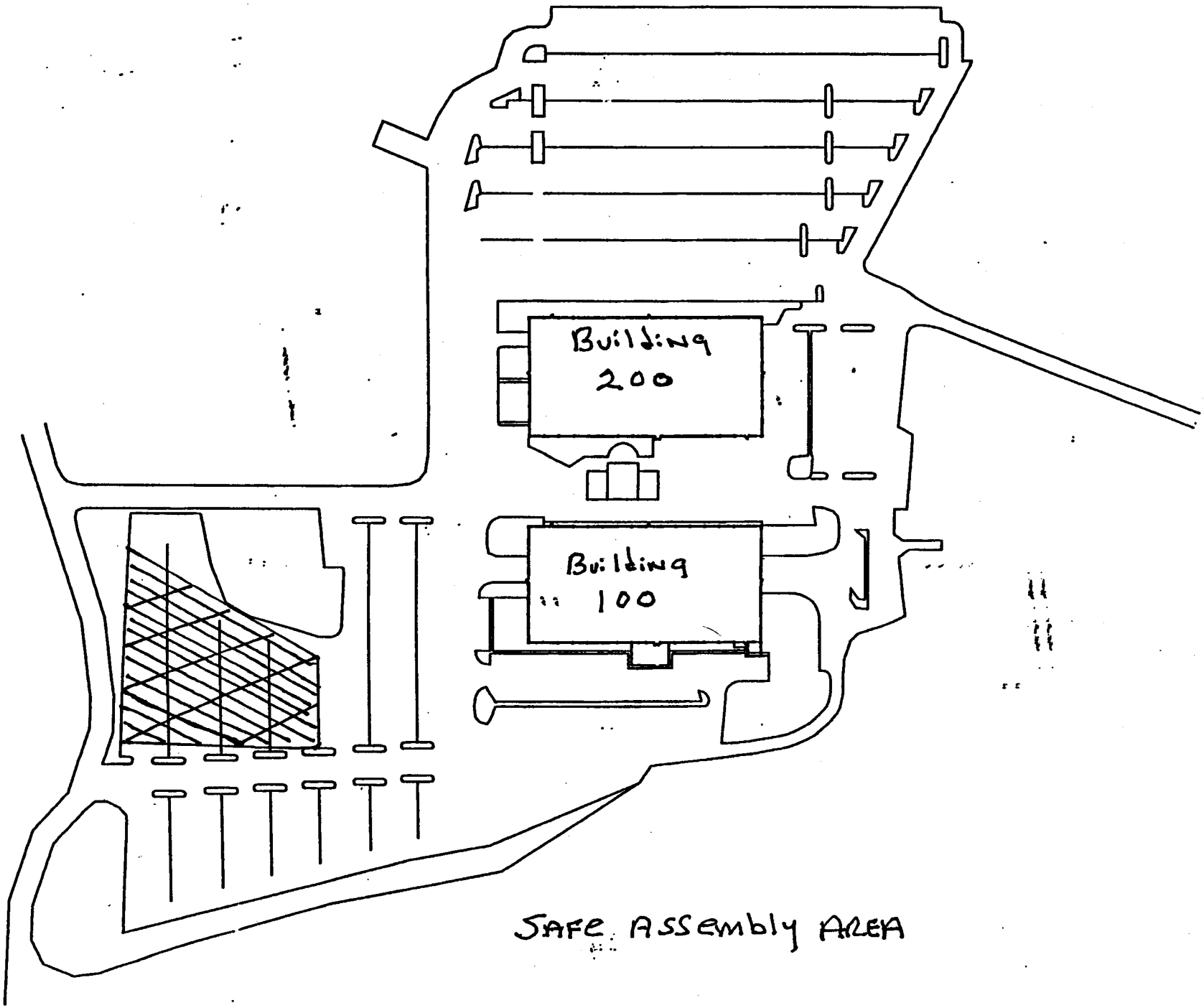
**Person receiving call:** _____

**Telephone number where call received :** _____

**Date:** _____

**Report call immediately to: 4-1404-ext.-0**


Stairwells
Exits
Elevators

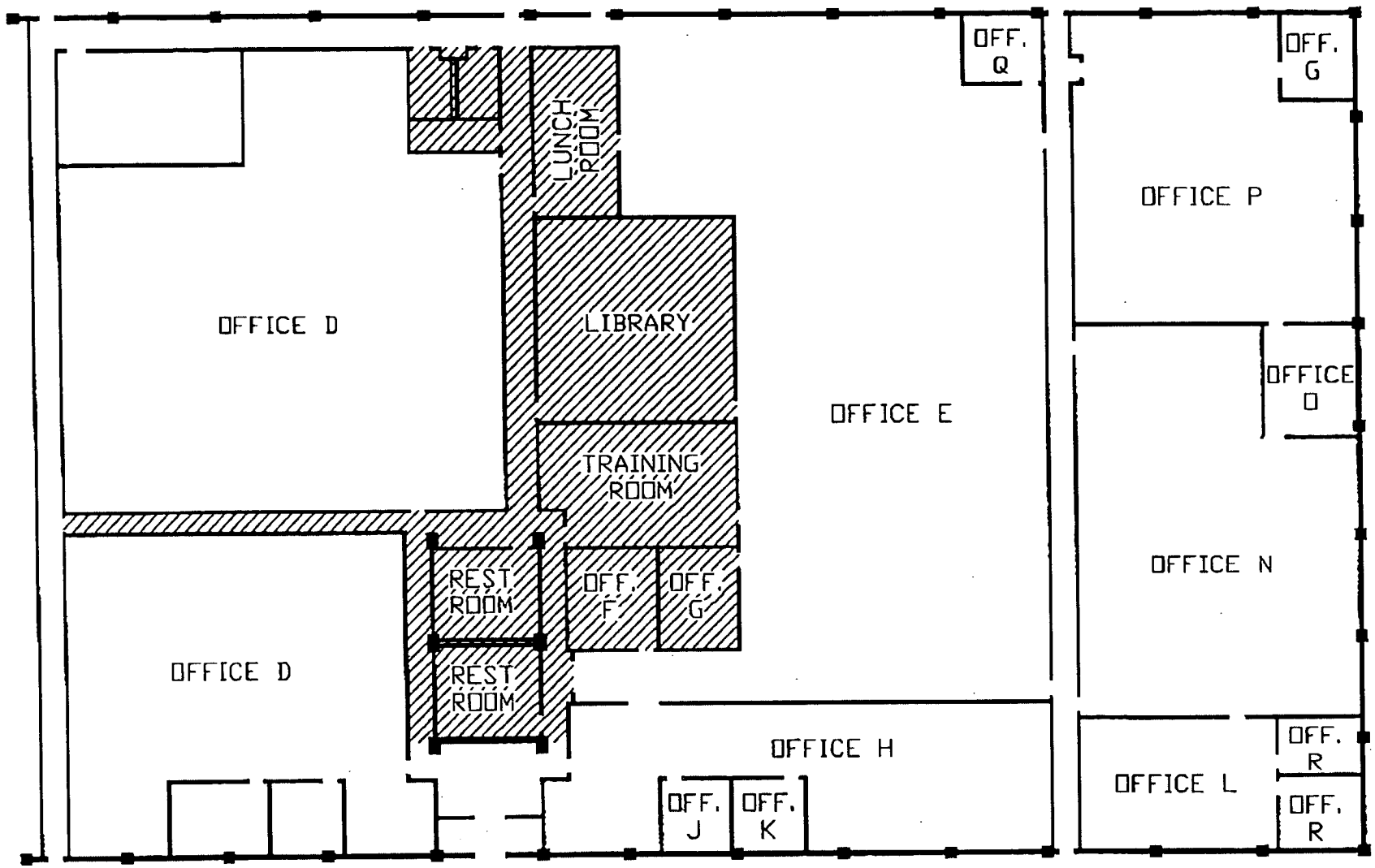

Building
200
Building
100
SAFE ASSEMBLY AREA

# SAMPLE VIOLENCE DOCUMENTATION FORM

| | |
|---|---|
| **Date/Time of Incident:** | **Date/Time Reported** |
| **Reported to:** | **Reported by:** |
| **Location:** | **Type of Incident:** |
| **Perpetrator:** | **Victim:** |
| **Witnesses:** | |
| **Describe the Incident:** | |
| **List Actions Taken in Response:** | |

**Report Prepared by:** _____

**Date Prepared:** _____




TOTAL P.08

DEPARTMENT OF INFORMATION SYSTEMS
FAIR OAKS OFFICE COMPLEX

TORNADO SHELTER SURVE

# TORNADO SHELTER SURVEY
# FOR
# TRAINING FACILITY
# DEPARTMENT OF INFORMATION SYSTEMS
# FRANKFORT, KENTUCKY

AUGUST 1999

KENTUCKY DIVISION OF EMERGENCY MANAGEMENT
EMERGENCY OPERATIONS CENTER
BOONE CENTER
FRANKFORT, KENTUCKY

## INTRODUCTION

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## GENERAL COMMENTS

On Wednesday, March 17, 1999 an on-site inspection was made of the Department of Information Systems (DIS), Training Facility, 193 Versailles Road, Frankfort, Kentucky. The inspection was accomplished with the assistance of Mr. David Brown, DIS. It was conducted to locate space offering the best available protection from wind storms and tornadoes. The resulting spaces are designated on a simplified plan of the building (See enclosed building plan).

A basement or below ground area offers the safest space in a building during a tornado, provided there are no structural deficiencies or safety hazards such as unprotected machinery, exposed equipment, storage tanks and pipes that could rupture and release hazardous materials. The DIS Training Facility is a two story structure with no basement. The lowest level of the building is below ground on the north side and the back or south

side of the building opens onto a parking lot. Because of the protective below grade walls, all shelter areas are designated on this lower level.

From a visual examination of the facilities during the inspection, it was determined that the building was a wall bearing structure. The overhead construction consists of a concrete slab on a metal deck and open-web steel joists. The roof construction is either metal deck, insulation and built-up roofing, or wood trusses, wood deck and fiberglass/asphalt shingles.

The evaluation of the tornado shelter areas designated in this report is based on engineering judgment. The shelter areas are believed to be the **best available** in the facility, though the selection does not imply a guarantee of safety. A differentiation of Primary and Secondary space is made on the plan of the building as a relative description of the available shelter. **Primary** being the area that should be considered first when designating shelter space, and **Secondary** shelter space as not being ideally suited for protecting the occupants due to one or more structural or safety hazard(s).

To aid in the effective use of the shelter areas designated, plans should be made for a warning system in the building. The DIS Training Facility utilizes a designated alarm to notify employees and building occupants of approaching severe weather. A NOAA Weather Radio is used to receive the initial severe weather warning. The buildings current emergency plan should also be updated to include instructions for an orderly evacuation to the several shelter areas. In designating possible shelter areas in each building first consideration should be given to interior spaces with short spans (such as corridors and small offices with no exterior walls) on the lowest floor of the building. Whenever possible, rooms with exterior walls should be avoided.

## PRIMARY SHELTER AREAS

The enclosed building plan identifies the recommended tornado shelter areas for the DIS Training Facility. The following calculation is an estimation of the number of primary shelter spaces available in the facility. The resulting number assists in determining if secondary shelter areas are needed to accommodate the actual building population.

| | |
|---|---|
| Primary Shelter Area | 1,890 Square feet |
| x Usability Factor * | x .85[1] |
| Usable Primary Shelter Area | 1,606 Square feet of Usable Primary Shelter Area |

The 1,606 square feet of usable shelter area translates into approximately **267 tornado shelter spaces at 6 square feet per space**. The primary shelter spaces indicated are sufficient to accommodate the current maximum building population of approximately 150 persons. The shelter area was chosen because it is interior space with a relatively short structural span.

## SECONDARY SHELTER AREAS

If additional shelter spaces are required, employees and building occupants could also take shelter in the Training Rooms. These areas are below ground, but are designated secondary shelter because they have longer spans between the partition walls. Building occupants using these rooms should take the additional protective action of getting under a desk, table or other heavy furniture, if available. These pieces of furniture can offer protection from non-structural building elements, such as light fixtures, HVAC diffusers and ceiling tiles which could collapse into the space. An exercise should be conducted before the spring severe weather season to determine if the areas selected will effectively shelter the building population.

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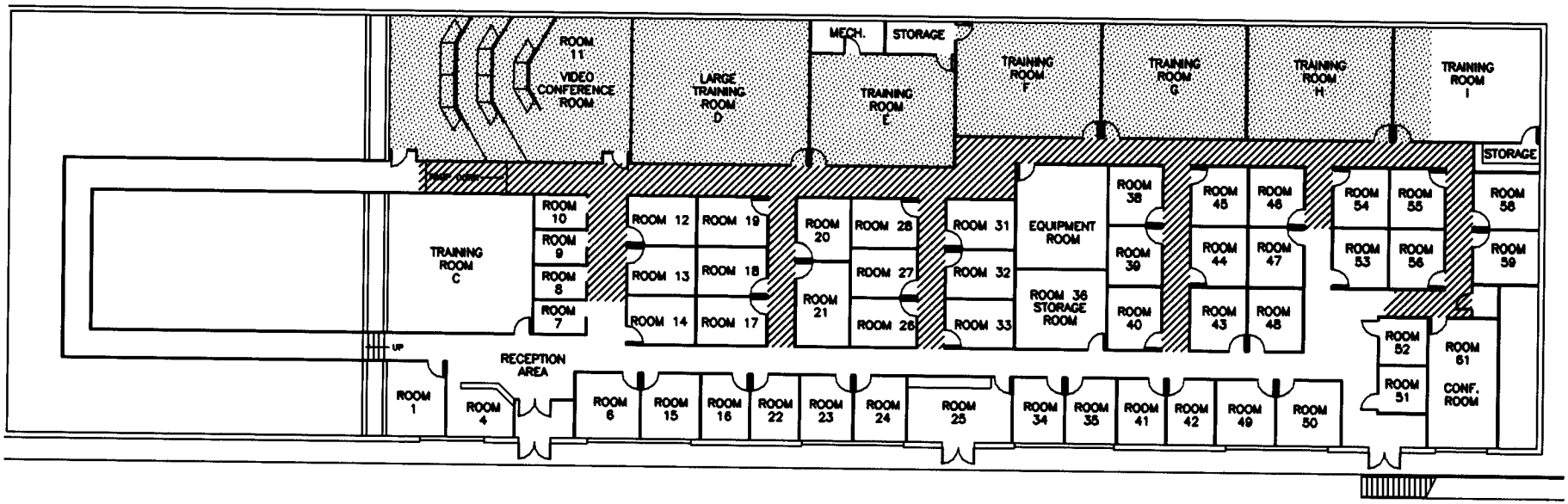
[1] Floor Area Usability Factor for Government Offices.

## TORNADO SAFETY

Safety can sometimes be improved by upgrading the shelter areas in a building. For example, cleaning proposed shelter areas of unnecessary equipment and debris. Glass areas in or near the shelters should be of reinforced glass or structural plastic. Other general safety rules include:

1. When a severe storm is imminent, everyone should seek shelter inside. Persons working in buildings with no shelter should be advised to move to areas of safety in other structures.
2. Stay away from **windows, outside doors and exterior walls**. Avoid unprotected corridors facing the oncoming winds. Exterior openings at both ends of a corridor can allow the winds to penetrate into interior space and become a wind tunnel.
3. Stay away from rooms with long span roof members. The use of interior corridors and small interior rooms is recommended.
4. Seek protection from flying debris, particularly glass. Example: A sitting or kneeling position with hands protecting the back of the head and neck. Use a coat, jacket, book, etc. as a shield and face away from glass areas.
5. Keep calm. Do not run outside.

Additional information on protective measures and survey refinement are contained in FEMA publication TR-83B Tornado Protection, Selecting and Designing Safe Areas in Buildings.




RAINING FACILITY
EPARTMENT OF INFORMATION SYSTEMS
93 VERSAILLES ROAD, FRANKFORT, KY

NORTH

PRIMARY TORNADO SHELTER

SECONDARY TORNADO SHELTER